

REMARKS/ARGUMENTS

Favorable reconsideration of this application in view of the above amendments and in light of the following discussion is respectfully requested.

Claims 1 and 3-19 are pending. Claims 1, 5, 6, 8 and 9 are amended; Claim 2 is canceled without prejudice or disclaimer; and Claims 13-19 are newly submitted. No new matter is introduced.¹

The Office Action objected to the drawings and the specification. In addition, the Office Action rejected Claims 1 and 2 under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement; rejected Claim 2 under 35 U.S.C. § 112, second paragraph as indefinite; rejected Claims 1-4 and 6-12 under 35 U.S.C. § 102(b) as anticipated by Janusch (U.S. Patent No. 4,541,929); and rejected Claims 1 and 5 as anticipated by Adams (U.S. Patent No. 1,831,473).

Applicants acknowledge with appreciation the courtesy of Examiner Soohoo and Examiner Mellon in conducting a personal interview with Applicants' representative on April 21, 2009. The substance of the interview is summarized hereinafter. During the interview, Applicants' representative discussed the features of adhesion and "follow-rotation" as supported at paragraphs [0018], [0019], [0048] and [0049] of the specification as originally filed. Applicants' representative also presented proposed amendments to Claim 1 to clarify these features. As noted in the interview summary, Examiner Soohoo indicated that the adhesion forces in the relative liquids in the mixture is more directed to the effect and

¹ Support for amended Claim 1 can be found at least in Claim 2 as previously presented and at least at paragraphs [0018], [0048] and [0049] of the specification as originally filed, for example. Support for new Claims 13-19 can be found at least at paragraphs [0048] and [0049] of the specification as originally filed, for example.

operation of the structural elements and not the particular structural limitation producing the effect.

Following from this discussion, amended Claim 1 further clarifies that the cylindrical outer member includes an inner peripheral surface configured to adhere to the particular substance with a stronger adhesion force than to other substances in the mixed liquid, and the inner member includes an outer peripheral surface that is configured to adhere to the particular substance with a stronger adhesion force than to other substances in the mixed liquid. Thus, amended Claim 1 recites structural elements (the inner peripheral surface of the outer member and the outer peripheral surface of the inner member) that produce the separation recited in Claim 1. Also following from the discussion during the personal interview, new Claims 13-19 are submitted. Claims 13-19 recite further features of the claimed inner peripheral surface of the outer member and the outer peripheral surface of the inner member.

In response to the objection to the drawings, paragraph [0056] of the specification as originally filed is amended to recite an expelling port 16. Accordingly, all of the drawing sheets are believed to be in compliance with 37 C.F.R. § 1.121(d). It is respectfully requested the objection to the drawings be withdrawn.

With respect to the objections to the specification, the abstract is amended to be less than 150 words and paragraph [0002] of the specification as originally filed is amended as suggested in the Office Action. Accordingly, it is respectfully requested the objections to the specification be withdrawn.

Turning next to the rejections under 35 U.S.C. § 112, first and second paragraphs, the Office Action asserts the terms “follow-rotating” and “follow-rotating property” are not

adequately defined in the disclosure as originally filed. As discussed during the personal interview, the “follow-rotating property” disclosed in the specification relates to the ability of a substance to follow the motion (in this case rotation) of the claimed inner or member due to adhesion. For example, paragraph [0018] of the specification as originally filed states (emphasis added) “The mixed liquid separating apparatus separates the mixed liquid by utilizing difference of the follow-rotation property between the inner member and the outer member, and the particular substance to be separated. As a result, the substances such as the liquids of which viscosity is different, and which have different adhering force to the inner member and the outer member can be separated;” and paragraph [0048] of the specification as originally filed states (emphasis added) “The outer member and the inner member preferably have a quality to follow-rotate to the particular substance in the mixed liquid. For example, the substance easily adhering to the outer member and the inner member physically or chemically follow-rotates to them.”

Thus, the term “follow-rotating property” is fully supported and enabled by the disclosure as originally filed. Nevertheless, in the spirit of advancing prosecution in this case, the phrase “follow-rotating property” is deleted from amended Claim 1, Claim 2 is canceled without prejudice or disclaimer and amended Claim 1 clarifies that the cylindrical outer member includes an inner peripheral surface *configured to adhere to the particular substance with a stronger adhesion force* than to other substances in the mixed liquid, and the inner member includes an outer peripheral surface that is *configured to adhere to the particular substance with a stronger adhesion force* than to other substances in the mixed liquid. As noted above, this amendment is fully supported by at least paragraphs [0018], [0048] and [0049] of the specification as originally filed. Moreover, paragraph [0049]

provides specific, non-limiting examples of how one of ordinary skill in the art can make or use the inner member and outer member having the claimed properties:

The particular substance, due to adhering force and the frictional force thereof, follow-rotates to the cylindrical inner peripheral surface of the outer member, and the guiding wall (male screw) of the inner member. For further increasing the follow-rotating character, the inner peripheral surface of the outer member or the outer peripheral surface of the inner member is formed into a nap-shaped or brush-shaped convex/concave surface. The convex/concave surface facilitates adhering of the powder such as the metallic dust thereto. At least one of the inner peripheral surface of the outer member or the outer peripheral surface of the inner member can be made into a hydrophilic, surface hydrophobic surface, or magnetic surface.

Accordingly, all of the claims of the present application are believed to be fully enabled as well as definite and clear. It is respectfully requested the rejections under 35 U.S.C. § 112, first and second paragraphs be withdrawn.

It is respectfully requested the rejection based on Janusch and Adams be withdrawn.

Amended Claim 1 relates to a mixed liquid separating apparatus for separating a particular substance from a mixed liquid containing at least two kinds of substances. The mixed liquid separating apparatus includes a cylindrical outer member, a rod-shaped inner member disposed coaxially with the outer member so as to be rotatable relative to the cylindrical outer member, a driving unit configured to rotate the outer member and the inner member relative to each other, and a spiral guiding wall that is configured to guide the particular substance from a first end of the cylindrical outer member to a second end of the cylindrical outer member by relative rotation between the outer member and the inner member.

As noted above, amended Claim 1 further clarifies that the cylindrical outer member includes an inner peripheral surface configured to adhere to the particular substance with a

stronger adhesion force than to other substances in the mixed liquid, and the inner member includes an outer peripheral surface that is configured to adhere to the particular substance with a stronger adhesion force than to other substances in the mixed liquid.

Turning to the applied references, neither Janusch nor Adams, either alone or in combination, disclose or suggest the claimed inner and outer members having the claimed surfaces.

Figure 1 of Janusch illustrates a drying device that includes a housing 1, a rotatably supported slot-sieve drum 2, and a conveying screw 3 rotatably supported within the slot-sieve drum 2. The Office Action identifies the slot-sieve drum 2 as the claimed outer cylindrical member and the conveying screw 3 as the claimed rod-shaped inner member. However, Janusch fails to disclose or suggest that either the slot-sieve drum 2 or the conveying screw 3 are configured to adhere to a particular substance with a stronger adhesion force than to other substances in a mixed liquid. Instead, Janusch describes, without making any statements regarding relative adhesion, that water-containing coals are conveyed in the slot-sieve drum 2 by the conveying screw 3 and dried using steam. Accordingly, Janusch fails to disclose all of the features recited in Claim 1.

Adams fails to cure the deficiencies in Janusch. Figures 1 and 2 of Adams illustrate a device for separating water from oil that includes a hollow shaft 20, a conical shaped housing 50 and a spiral track 62. The Office Action identifies the conical shaped housing 50 as the claimed outer cylindrical member and the hollow shaft 20 as the claimed rod-shaped inner member. However, Adams fails to disclose or suggest that either the hollow shaft 20 or the conical shaped housing 50 are configured to adhere to a particular substance with a stronger adhesion force than to other substances in a mixed liquid. Instead, as described at page 2, lines 22-58, Adams relies on a principle of centrifugal motion and the different relative

weights of oil and water (due to their differing densities) to separate oil from water. Adams makes no statement whatsoever regarding the relative adhesion of either of the hollow shaft 20 or the conical shaped housing 50 to oil and water. Accordingly, Adams fails to disclose all of the features recited in Claim 1.

Thus, even the combined teachings of Adams and Janusch fail to disclose all of the features recited in Claim 1. It is submitted Claim 1 and the claims depending therefrom are in condition for allowance.


New Claims 13-19 depend from Claim 1 and recite further features that are not disclosed or suggested by the cited references, particularly when considered in combination with the features of Claim 1. It is submitted Claims 13-19 are in condition for allowance.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for Claims 1 and 3-19 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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